Chapter I: Purpose and Need

Introduction

The *Final Fire Management Plan/Environmental Impact Statement* (EIS) presents several alternatives to implement National Park Service and federal wildland fire policies in the Project Area (see map 1-1). Fire management is an integral part of the park's natural and cultural resources management program. The *Yosemite Fire Management Plan* will assist in achieving land management objectives that are defined in the 1980 *General Management Plan*, the 1993 *Resources Management Plan*, and the 1997 *Vegetation Management Plan* for Yosemite National Park.

All major forest and chaparral plant communities in Yosemite have evolved under the influence of periodic fires, and many plants have developed adaptations to a regime of frequently occurring fires. Some plants are dependent upon fire for successful reproduction. Unfortunately, decades of fire suppression have altered park vegetation and wildlife habitat. The restoration of fire to its natural role in park ecosystems is one of the highest natural resource management priorities of Yosemite National Park.

Cultural resource management also benefits from fire, which can be used to protect cultural sites or to maintain cultural landscapes. Historic buildings must be protected from wildland fire, and one method is to periodically burn surrounding trees and shrubs to maintain an open, fire-resistant forest. Fire was also used by American Indians to maintain the meadows and the open stands of oak and conifers in Yosemite Valley. Historically, this helped maintain important traditional plants and living spaces.

Today, the open vistas of Yosemite Valley's meadows are enjoyed by millions of visitors every year, yet the suppression of fire has allowed trees to encroach on these historic vistas and cultural landscapes, changing the appearance of many areas of the park. Thus, fire plays a role in sustaining not only the natural ecosystems, but also the cultural value of the landscapes in Yosemite National Park.

Most of Yosemite is a vast, mountain Wilderness intersected by road and trail corridors and dotted with cabins, historical sites, businesses, and administrative and recreational areas. The park is adjacent to communities, private lands, and public lands managed by other agencies. Because of this mosaic of land uses and designations, land management policies and activities are complex.

This is especially true for fire management actions, which must respond in different ways in the various areas of the park. This document proposes alternatives for managing wildland and prescribed fire and for maintaining and restoring ecosystems, reducing fuels, and protecting cultural resources in the Project Area. It also examines the environmental impacts of each alternative.

With the completion of the fire management plan, Yosemite National Park's fire management program would employ a variety of activities to accomplish land and resource management objectives and to reduce the risk of unwanted fire in and adjacent to the park. Depending on the area needing attention, the park would use different methods (also known as *treatments*) to manage fire and to reduce the decades of accumulation of burnable vegetation and woody debris (dead and dry wood, leaves, duff).

Strategies for implementation would be based on knowledge gained from fire and fuels research, monitoring, and experience in Yosemite over the last half century, and in particular in the last 30 years when National Park Service policy changed from the suppression of all fire to one of fire management. Under fire management, lightning-caused fires may be allowed to burn, prescribed fires may be set by park managers, and all unwanted fires are suppressed.

Fire management plans are fundamental strategic documents that guide the full range of fire management related activities permitted by policy. They are required by the National Park Service Director's Order 18 (NPS 1998a) which says: "Every park area with burnable vegetation must have a fire management plan approved by the Superintendent," and the 2001 Federal Wildland Fire Management Policy (hereafter, 2001 Federal Fire Policy), which states: "Complete, or update, Fire Management Plans for all areas with burnable vegetation."

The Decision to Prepare an Environmental Impact Statement

The decision to prepare an Environmental Impact Statement (EIS) on the *Draft Yosemite Fire Management Plan* was made by the Superintendent of Yosemite National Park after specific issues were raised by the public during preliminary scoping (conducted in 1999). Members of the public were concerned about wildland fires and the build-up of forest fuels near communities and developed areas in and near Yosemite National Park.

The *Final Yosemite Fire Management Plan/EIS* was prepared to comply with the requirements of the National Environmental Policy Act (NEPA) and National Historic Preservation Act as well as the Endangered Species Act and the Wild and Scenic Rivers Act. The legal authority for preparing and implementing the *Yosemite Fire Management Plan* is 16 USC 1 through 4, which is the 1916 Organic Act for the National Park Service.

Following the public comment period on the *Draft Yosemite Fire Management Plan/EIS* and consultations on any actions that affected historic resources or special-status species, this *Final Yosemite Fire Management Plan/EIS* has been prepared. At the conclusion of a 30-day waiting period, the National Park Service will issue a Record of Decision, signed by the Pacific West Regional Director of the National Park Service. Any changes that are made to Yosemite's fire management program will be implemented. An implementation document, the *Yosemite Fire Management Plan*, will also be prepared. It will become the working document for guiding fire management actions in Yosemite National Park.

Purpose Of and Need For the Yosemite Fire Management Plan

Purpose of the Plan

The purpose of the *Final Yosemite Fire Management Plan/EIS* is to present and analyze alternatives for carrying out the fire management program in Yosemite. It also presents and analyzes effects that would occur as a result of implementing these alternatives in different areas of the park. The specific purposes of the *Yosemite Fire Management Plan* are to:

- Identify and implement methods to restore and maintain park ecosystems and ecosystem processes that allow fire to play its natural role in the ecosystem, both as wildland fire and prescribed fire.

- Reduce the risk of fire to cultural resources (i.e., historic buildings, pictographs) through fuels reduction, prescribed burning, or fire suppression to prevent fires from damaging cultural resources. Fire will also be used as a tool to manage cultural landscapes.

- Reduce the risk of catastrophic fire, including near the wildland/urban interface (communities, government and commercial buildings, and other developed areas), while continuing to reverse the adverse effects from past fire suppression and prevention activities.

- Execute a fire management program that provides a safe environment for firefighters and the public, including safe operations and fire management related facilities (e.g., helibases, fire camps, fire stations).

- Provide a plan that is consistent with National Park Service wildland fire management policy and adheres to guiding principles from the 2001 Federal Fire Policy, which recognizes that:

  - Firefighter and public safety is the first priority in every fire management activity.

  - Wildland fire is an essential natural process

  - Fire management plans, programs, and activities support land and resource management plans and their implementation.

  - Sound risk management is a foundation for all fire management activities.

  - Fire management programs and activities are economically viable, based on values to be protected, costs, and land and resource management objectives.

  - Fire-related plans and activities should be based upon the best available science.

  - Fire management plans and activities incorporate public health and environmental quality considerations.

  - Federal, state, tribal, local, and interagency coordination and cooperation are essential.

  - Standardization of policies and procedures with other agencies is an ongoing objective.

Need for the Plan

Since the early 1970s, National Park Service fire policy has been to allow fire to play a more natural role in park ecosystems. The park's fire management program has pursued this policy for over three decades, yet the program, while making significant inroads, has not been able to meet park land management objectives of ecosystems restoration and providing protection for developed areas and cultural resources through reduction of hazardous quantities of wildland fuels.

The long-term buildup of fuels has continued under the existing plan in many areas of the Project Area. Increased application of prescribed fire and additional methods of hazard fuel reduction are needed to restore fire to ecosystems and reduce forest fuels in at-risk areas on a larger and more significant scale than has occurred historically.

A revised *Yosemite Fire Management Plan* is needed because:

- Fire has a natural role in maintaining and sustaining ecosystems in Yosemite National Park, some of which have been altered by past fire suppression activities. Refinements to the fire management program are needed that will promote ecosystem sustainability.

- Communities, cultural resources (i.e., historic structures, blazed trees, and pictographs), campgrounds, and other developed areas of the park need protection from unwanted, high-intensity wildland fires. Fire treatments and pretreatments (e.g., prescribed fire, mechanical thinning of understory vegetation, pile burning, chipping) are needed that will reduce the risk of catastrophic fire and ensuing property loss, and begin to reverse the fuel accumulation and ecosystem changes that have created these risks.

- Fire can help restore and maintain cultural and traditional landscapes valued by visitors and descendants of culturally associated American Indians.

- Management of wildland fires, prescribed burning, and fuel reduction treatments require up-to-date planning and preparation.

- Fire management activities require collaboration with federal, state, county, tribal and local agencies, and a fire management plan provides a basis for communication, coordination, and project planning with partner agencies.

- Yosemite National Park must comply with the 2001 Federal Fire Policy.

- Safety is paramount to all fire management operations. The use of helicopters is essential for monitoring and controlling wildland fires and to transport crews and equipment for fire management activities. Helicopters also provide emergency services for the Yosemite area. Three of the existing helibases have marginal safety clearances, are too close to populated areas, or have poor road access. Helibase upgrades are needed to ensure continued safe operations at Crane Flat, El Portal, and Wawona Meadow helibases.

Background

The Sierra Nevada has a high incidence of lightning fires. Over the past 30 years in Yosemite National Park, lightning has started an average of 55 fires, or 83 fires per million burnable acres each year (NPS 1990). Tens of thousands of acres have burned in some years, while in other years only a few acres have burned. It is conservatively estimated that an average of 16,000 acres per year may have burned under natural conditions in the park. This average is equivalent to 2.4% of the park's burnable vegetation every year. Additional acres were periodically burned by American Indians in Yosemite Valley and other areas. These fires affected the amount and types of vegetation in those areas—both of which, in turn, influence fire incidence and behavior.

Evolution of the Policy toward Natural Processes Management

An awareness that suppression of natural fires led to a disruption of ecological processes and a diminished visitor experience, along with an evolving body of knowledge which suggested that fires are an essential element in the survival of the giant sequoia groves, led to a reassessment of the traditional National Park Service policy of suppressing all lightning fires. A major step in this process was the report of the Advisory Board on Wildlife Management in the National Parks

(Leopold et al.1963). About the changing forest conditions in the Sierra Nevada, the board observed:

> *Today much of the west slope is a dog-hair thicket of young pines, white fir, incense-cedar, and mature brush—a direct function of overprotection from natural ground fires. Within the four National Parks – Lassen, Yosemite, Sequoia and Kings Canyon – the thickets are even more impenetrable than elsewhere … Is it possible that the primitive open forest could be restored, at least on a local scale?*

This report had a major influence on the National Park Service, which began to change its policy on natural processes management in the late 1960s. In 1970, Yosemite National Park initiated the use of prescribed fire, and in 1972 the park began to allow naturally-ignited wildland fires in the higher elevations to burn, shortly after similar programs were instituted at Sequoia and Kings Canyon National Parks.

Wildland Fire Conditions in Yosemite

All vegetation that can sustain a wildland fire in Yosemite National Park will burn from time to time. As a result, plants and plant communities exist within a cycle of burning and growth. Between burns, the structure of the forest changes as the smaller plants beneath the tree canopy (plants of the *understory*) grow larger and some plants out-compete or out-grow others. Some plant communities sustain fires that mainly burn the undergrowth and leave most of the overstory trees unharmed. Other communities, like lodgepole pine, must accumulate enough fuel to sustain larger, more intense fires, commonly called *stand replacement fires*.

Some areas burn more frequently than do others. Fire tends to move through ponderosa pine/bear clover forests often, about every two to six years, creating an open understory while leaving the larger, fire-resistant trees. On the other hand, in red fir forests, which may burn frequently or may not be visited by fire for decades, the range for fire frequency is wide, from 5 to 70 years. Because the return of fire can vary greatly depending on forest type, time between natural fires is expressed as a range and is the *fire return interval*.

It is important to note that the term "natural" does not refer to any specific point in time or year but rather to a range of conditions that existed prior to the arrival of European settlers in the region. Park managers and scientists from Yosemite, Sequoia and Kings Canyon, Lassen, and Crater Lake National Parks have worked to develop a definition of the range of conditions and characteristics which described the presettlement forest ecosystems of these parks.

These ranges are displayed in tables 2.3 and 2.4. It is also important to note that the park program will use as its management objectives the portion of the ranges which will require the least amount of manipulation to restore, particularly with mechanical means. Natural processes will be used to the fullest extent possible to restore or maintain the natural range of variability, i.e., the range of characteristics such as vegetation density and species composition that existed prior to the onset of wildland fire suppression.

The combination of the frequency, extent, duration, behavior, season, and effects of natural fire that typically would burn within a specific landscape is called the *fire regime*. When fires in a specific area are regularly put out, the natural fire regime is disrupted. In Yosemite, administrative fire records go back to 1930 and information is also available for about another decade of documented fire history. Thus, managers at Yosemite have 80 years of records on fire and fire

suppression activities on which to rely, in addition to even earlier anecdotal information. In addition, tree ring studies provide a history of fire frequency sometimes dating back hundreds of years.

Measuring the difference between the natural frequency of wildland fires and the number of years fire has been suppressed provides an indication of how far vegetation communities in a particular vegetation type deviate from natural conditions, had fires been allowed to burn. The number of missed fire return intervals is the *fire return interval departure* or FRID.

If an area had a fire cycle of approximately 10 years between historic fires and all fires in the area have been suppressed for 50 years, the FRID would equal five. Information on the number of fire return intervals that have been missed can be used to estimate how much an area has been disrupted from the vegetation and structure that would have been seen had fires been allowed to burn naturally.

In Yosemite National Park, fire has been largely suppressed since the 1920s, and in some areas, fire has been suppressed since the mid-19th century. In these areas of decades-long fire suppression, vegetation types that have short fire return intervals have missed several fires and show a large deviation from natural conditions. This means that wildland fuel has accumulated and forest density has increased to dangerous levels. In the last two decades, the National Park Service has restored fire to many of these areas, especially in Wilderness. However, the present program has not been able to meet the needs of the whole park, especially in the areas contiguous with wildland/urban interface (WUI) communities.

Long-Term Effects of Fire Suppression on Yosemite's Natural Resources

Because the National Park Service suppressed wildland fires, natural plant community succession, species composition, and forest structure have been altered. These changes are most pronounced in the oak woodlands, ponderosa pine/mixed-conifer, and white fir/mixed-conifer communities. The forest canopy is becoming increasingly closed and forest openings smaller as shade tolerant species grow in dense thickets. Fewer grasses, forbs, and shrubs grow in the remaining openings. Small trees are also encroaching on meadows that once would have been maintained by frequent fires.

In addition, subtle but important hydrological changes may have occurred because of increased forest growth. Decreased runoff and infiltration may have altered the water table around meadows, helping to accelerate tree invasion. It is also acknowledged that the late 19th century removal of part of Yosemite Valley's terminal moraine by early Euro-Americans altered the hydrologic regime of the Valley. All of these changes have, in turn, caused a deterioration in the habitat favored by many forms of wildlife, and therefore in the value of the ecosystem to the park visitor as a "vignette of primitive America" (Leopold et al.1963).

Lack of fire has changed habitat that is critical for certain wildlife species. When the number and extent of forest openings, or gaps, is reduced as forest density increases due to fire suppression, key shade-intolerant herbaceous and shrub species (particularly nitrogen fixers such as ceanothus) are also diminished (Bonnicksen and Stone 1982). Wildlife that depends on these plants, such as deer, has less available habitat.

Other species are dependent on fresh, fire-created snags and, like the black-backed woodpecker, may suffer a decline in the absence of fire. Lack of burning can also extend higher up the food

chain. For example, rodents are less abundant in areas where fire has been excluded, almost certainly leading to a reduction in the carnivorous populations that depend on them.

The reverse of fire exclusion is the catastrophic effects from the inevitable reoccurrence of fire in ecosystems in which it has been suppressed for an unnaturally long period. The problems associated with vegetation changes that have increased the risk of uncontrollable wildland fires are especially prevalent at lower elevations. There, the natural mosaic of diverse vegetation types and ages is slowly being replaced by dense, continuous stands of shrubs and trees because of the success of fire suppression. Lower-elevation forests are susceptible to high-intensity wildland fire because of the increase in living and dead vegetation, both of which are fuel for fires.

The density of trees and shrubs has created a hazardous arrangement, both horizontally and vertically, of closely-standing, burnable vegetation, or *fuel ladders*, in the understory. Fuel ladders help fires ascend into the larger trees, or *overstory*. This combination of fuel ladders and a high density of fuels also increase the potential for insect and pathogen infestations, which, if they cause tree die-off, increase the potential for fire. In the event of catastrophic fire, whole landscapes can be denuded and reverted to shrub communities, watershed processes can be compromised, and other values can be greatly altered.

Fire and Visitor Experiences

Early explorers in the Yosemite region reported open park-like stands of large ponderosa and sugar pine, California black oak, and other trees (Bunnell 1890; Clark 1894). Photographs of Yosemite in the 1860s and 1870s confirm that this situation existed in many areas, including Yosemite Valley and the giant sequoia groves. This forest structure, primarily maintained by natural fires and fires set by Miwok inhabitants, has largely disappeared. This change has not only disrupted natural ecological processes, but has also changed the look of the Valley and most of the western portion of the park. Visitors are affected by loss of vistas and forest openings, fewer opportunities to see wildlife because of habitat changes, and difficulties in off-trail hiking opportunities because of increased undergrowth.

Fire and Developed Areas

Yosemite Valley, Wawona, El Portal, Foresta and the other communities and developed areas in and near Yosemite (map 1.2) are all located within plant community types that have evolved under the influence of fire. For decades, aggressive fire fighting has helped protect private and public property, historic and cultural resources, and boundary areas. However, these actions have contributed to ever increasing accumulations of fuels in grass, woodland, and forest areas, and an increasing potential for large, high-intensity fires that are difficult to control. Fire suppression is becoming increasingly difficult and expensive, a pattern reflected throughout western wildlands.

Over the last two decades, public awareness about deteriorating forest conditions and the danger of wildland fires near communities has increased because of the large numbers of devastating fires across the western United States. In 2002, three states (Arizona, Colorado, and Oregon) experienced the largest wildfires in their histories. In 1990, the A-Rock Fire burned a significant amount of private and National Park Service property in Foresta and the surrounding area and forced the closure of the park to the public for several days. This fire exhibited an intensity not previously seen in the Yosemite area, which is attributed to the buildup of wildland fuels because of fire suppression activities over many decades.

Existing Situation

Today, after more than 30 years of proactive fire management, the park is far from restoring natural fire regimes to the entire park landscape, though significant inroads have been made (Caprio and Graber 2000). While fuel reduction and prescribed burning have increased since the 1990 A-Rock Fire, developed areas are still at risk from uncontrolled wildland fires. The 2001 Federal Fire Policy specifically mandates public land agencies to reduce the amount of forest and shrubland fuels around areas with homes and buildings, and to restore ecosystems to a more natural, fire-tolerant balance. In response, the National Park Service has issued new fire management guidelines that require updated fire management plans.

Wildland/Urban Interface

The wildland/urban interface has been noted as a topic of special concern under the federal fire policy. Communities at risk from wildland fire have been identified by local, state, and federal fire management agencies. Much of the fuel management funding appropriated by Congress is intended to be used to reduce the threat of wildland fire to these communities.

Risk and damage caused by wildland fire are not limited to buildings. Wildland fires can create a significant safety risk to the public not only from the fire itself but also by the panic its occurrence can cause. Public health is impaired by long-lasting and dense amounts of smoke. Natural resources, including wildlife, soil, water quality, and vegetation can be degraded for decades, or require millions of dollars to rehabilitate. Local economies, especially those dependent on tourism, can experience severe financial loss when wildland fire causes road and area closures, as well as postfire loss of recreational opportunities.

Most importantly, public and firefighter safety are the first priority in the federal fire policy. The implementation of a fuel management program on a sustained, landscape level has been consistently identified as needed to reduce the intensities of wildland fires burning in unnaturally dense fuel, and to decrease as fully as possible the number of firefighters who die every year fighting these fires.

The wildland/urban interface is larger than the immediate area around a building. The Yosemite fire management program, like that of other local, state, and federal fire management organizations in California, considers the wildland urban interface to extend approximately 1 ½ miles around the park's six wildland urban interface communities of Hodgdon Meadow, Yosemite West, Yosemite Valley, Foresta, El Portal, and Wawona.

Where natural features such as cliffs and rivers define a defensible boundary which firefighters can use to defend these communities, the wildland/urban interface area is smaller than 1 ½ miles. The wildland/urban interface area is further divided into the *inner WUI*, which is comprised of the core community plus a ¼ mile-wide belt around it, and the *outer WUI*, which is beyond the ¼ mile wide belt up to the maximum of 1 ½ miles. Hazard reduction activities in the inner WUI area are given a high priority under this document.

Goals and Objectives of the Yosemite Fire Management Plan

When completed, the *Yosemite Fire Management Plan* will describe a detailed program of actions to carry out fire management policies and objectives in Yosemite National Park and El Portal Administrative Site. The goals and objectives of the plan have their foundations in the park's

guiding management documents: the *General Management Plan* (1980), *Resources Management Plan* (1993), *Vegetation Management Plan* (1997), *Merced Wild and Scenic River Comprehensive Management Plan* (2000); as well as in National Park Service and federal legislation and fire policy; the National Park Service Organic Act; and the legislation establishing Yosemite National Park, Yosemite Wilderness, and the Merced and Tuolumne Wild and Scenic Rivers.

Each goal has a set of related management objectives. These may evolve during implementation of the fire management program, as part of the adaptive management process to which the fire management program adheres. It is recognized that achieving every goal to its fullest extent is not possible due to inherent conflicts between the goals. That is to say that one goal cannot be completely emphasized to the exclusion of other goals.

Goals and Objectives

Goal: Ensure firefighter and public safety.

The protection of firefighters and the public is the first priority in every fire management activity and during all phases of the fire management program.

Management Objectives:

- Plan and carry out all other activities consistent with and subordinate to safety considerations.
- Provide the fire management workforce with the training, equipment, operating procedures, safety measures, and information needed to manage risks and carry out their activities safely.
- Identify, inform, and protect visitors, communities, and other groups and individuals that potentially would be affected by fire management activities.
- Manage wildland and prescribed fires within designated areas or management units using the most current planning and risk assessment techniques available.

  Establish a Suppression Unit comprised of areas where wildland fire would have a high potential to compromise firefighter and public safety, threaten property, or violate air quality laws or regulations and where prescribed fire and other fuel reduction treatments could be used to reduce risks and accomplish resource management goals.

  Establish a Fire Use Unit to include areas where wildland fire could be managed to accomplish resource management goals in a way that did not compromise firefighter and public safety, threaten property, or violate air quality laws or regulations.

Goal: Implement a fire program that allows the natural process of fire to prevail in the Yosemite Wilderness.

The natural interactions between fire and the environment should influence the type, abundance, and distribution of plants and animals in the park. A crucial goal of Yosemite's fire management program is to restore or maintain natural fire regimes so that ecosystems can function essentially unimpaired by human interference. In areas showing adverse effects from fire suppression, restoration of forest structure and reduction of fuel loads

will allow natural processes to resume and reduce the risk of unwanted, high-intensity wildland fires that might cause undesirable changes in forest type and threaten human lives or property.

Management Objectives:

- Manage ecosystems within the natural range of variability for plant community structure and fuel loads.

- Ecosystems that are within the range of maintenance target conditions (see table 2.4) should be maintained through natural processes (naturally-caused and re-ignited wildland fire), within the constraints of policy.

  – Ecosystems that are not within the range of natural variability should be restored to restoration target conditions (table 2.3) and subsequently maintained through natural processes, within the constraints of policy. Mechanical fuel treatment methods will be used in wildland/urban interface areas where the use of prescribed or wildland fire is not practical for ecosystem restoration because of safety or smoke concerns. Even in these areas, however, prescribed fire will be used as fully as possible to maintain the natural range of variability once more natural fuel conditions have been restored mechanically.

- Avoid adverse impacts to special-status species and their habitat from fire management activities, unless cleared in advance through the appropriate regulatory process.

- Set priorities for treatment activities based on site-specific information on departure from natural fire return interval, target conditions, and other relevant factors.

Goal: Manage Special Management Areas for specific purposes as mandated by policy, safety, or other regulations.

Because these areas are unique, the fire program goals will be modified somewhat in and near the wildland/urban interface, in the giant sequoia groves, and near boundary areas. These areas will hereafter be referred to as Special Management Areas.

Management Objective:

- Adhere to goals and objectives specific to each Special Management Area.

Wildland/Urban Interface: Reduce the risk of wildland fire to communities and developed areas. In Wawona, Foresta, Yosemite Valley, Yosemite West, Hodgdon Meadow, and El Portal, the goal is to use fire management treatments, including mechanical fuel reduction methods, to reduce the risk of unwanted wildland fire while restoring plant community structure.

Management Objectives:

Restore ecosystems to at least the upper end of the range of restoration target conditions (see table 2.3) to promote fire tolerant plant communities and create defensible space. This should reduce risks and improve the manageability of fire.

- Forest fuels should be reduced within developed areas by thinning trees and removing underbrush and dead wildland fuels.

- Prescribed fire and other treatments should be used to provide optimum protection.
- Thinning protocols and size of trees removed will follow guidelines described in the Sierra Nevada Framework.

Base priorities for treatment activities on fuel hazard risk analysis, departure from natural fire return interval, target conditions, and other relevant information for each community.

Giant Sequoia Groves: Balance the restoration of natural process with the desire to preserve prime scenic and biological values. Preservation, restoration, and maintenance of the giant sequoia groves are the primary considerations.

Management Objectives:

Maintain natural giant sequoia groves, with a range of tree ages and site conditions characteristic of those in fire-maintained ecosystems.

Preserve scenic values, including open views of the groves, without interfering with the restoration or simulation of a lightning fire regime.

Boundary Areas: Simulate natural fire regimes along the National Park Service boundary. In most areas along the western park boundary, the goal is to simulate natural fire regimes in perpetuity. In areas where other agencies have goals similar to those in Yosemite National Park, collaboration might include a mutually acceptable range of treatment options.

Management Objectives:

Keep wildland fire within park boundaries if agreements with adjacent agencies have not been worked out.

If agreements have been or can be developed with other land management agencies, allow wildland fires to move across boundaries to meet goals of interagency fuel reduction and ecosystem restoration projects.

Goal: Allow fire to be used as a tool for special resource management projects.

There are numerous areas that may be sustained or helped by fire. For example, fire helps maintain meadows, scenic areas, cultural landscapes, and plant communities used by American Indians. It can discourage invasion by non-native plants.

Management Objectives:

- Use fire as a tool on special projects, consistent with the management objectives of the project plan, in collaboration with the proposing division.

Goal: Minimize impacts to cultural resources.

This goal recognizes that archaeological and historical sites, ethnographic resources, and cultural landscapes are more at risk when heavy fuel loads burn than when frequent fires burn in light fuel accumulations.

Management Objectives:

- Perpetuate natural fire processes to maintain light fuel loads on and adjacent to archaeological sites and historic structures.
- Protect significant cultural resources from adverse impacts of fire and fire management practices, to the extent feasible.
- Develop project protocols, through adaptive management, for using fire and other treatments to maintain the setting at historic sites and to maintain the integrity of other cultural resource sites.
- Consult and coordinate with American Indian groups to ensure the protection of traditional cultural resources.

Goal: Use the adaptive management process to effectively incorporate scientific knowledge and monitoring and evaluation results.

The adaptive management cycle includes the development of a plan with stated goals and objectives, means of carrying out the planned actions, monitoring of the results, evaluations of the outcome of the actions, and the use of hypothesis testing to refine prescriptions and methods.

Management Objectives:

- Conduct research that will help to understand the natural fire regimes, refine prescriptions, provide data for fire behavior models, and effectively implement the fire management program.
- Monitor and evaluate fire management activities (managed wildland fires, prescribed burns, and fuel reduction treatments), to assess their effects on natural and cultural resources and Special Management Areas.
- Update fire return interval departures, target conditions, prescriptions, and fire treatment priorities, as data becomes available.

Goal: Educate, inform, consult, and collaborate with stakeholders.

Management Objectives:

- Conduct wildland fire prevention, information, education, and other activities in communities within and abutting the park. Work in collaboration with local communities, county, state, and federal fire agencies with fire management interests.
- Develop interpretive displays and educational programs, working with the Division of Interpretation, to foster understanding and acceptance of the fire management program.
- Maintain relationships with the American Indian community, to encourage their participation in the management of traditional gathering areas. Facilitate the transfer of knowledge about fire management and traditional cultural practices.

- Collaborate with county and state air resources agencies to monitor smoke levels and manage smoke-related effects on visitors, residents, and employees.

Goal: Conduct a fire management program based on existing policy and in compliance with federal and state regulations.

It is the goal of the National Park Service that the activities described in the *Yosemite Fire Management Plan* be consistent with and implement existing National Park Service and federal wildland fire management policies and related federal regulations. This includes policies and regulations that provide direction about human safety, protection of property, coordination and communication with other agencies and jurisdictions, use of science, preparedness, suppression, prevention, and standardization of procedures.

Management Objectives:

- Implement a fire management program that is compliant with National Park Service and federal wildland fire management policy and applicable regulations.

Purpose and Significance of Yosemite National Park

Yosemite National Park was established and is managed in accordance with a series of laws, regulations, and executive orders.

On June 30, 1864, Yosemite Valley and the Mariposa Big Tree Grove were granted to the State of California by the federal government to "be held for public use, resort, and recreation" to be "inalienable for all time."

On October 1, 1890, Congress passed an act establishing Yosemite National Park as a "forest reservation" to preserve and protect "from injury, all timber, mineral deposits, natural curiosities, or wonders" within the park area, and to retain them in their "natural condition." The act excluded Yosemite Valley and the Mariposa Big Tree Grove, leaving them under the jurisdiction of the State of California, as provided for in the 1864 act.

A joint resolution of Congress on June 11, 1906 accepted the transfer of Yosemite Valley and the Mariposa Big Tree Grove from the State of California to the federal government as part of Yosemite National Park. Two primary purposes for Yosemite National Park were established in the 1864 act and subsequent legislation. They are:

- To preserve the resources that contribute to Yosemite's splendor and uniqueness, including its exquisite scenic beauty, outstanding Wilderness, and a nearly full diversity of Sierra Nevada environments.

- To make the varied resources of Yosemite available to people for their enjoyment, education, and recreation—now and in the future.

Under the California Wilderness Act of 1984, 95% of Yosemite National Park is designated Wilderness. The international importance of Yosemite National Park was recognized by the World Heritage Committee in 1984 when the park was designated a World Heritage Site. In 1958, Congress passed legislation for the Secretary of the Interior to provide an administrative site for

Yosemite National Park in the El Portal area (16 USC 47-1). The El Portal Administrative Site is under National Park Service jurisdiction, but is not included as part of Yosemite National Park.

Compliance with Federal Policy

Wildland fire management activities conducted by the National Park Service are guided by National Park Service management policies, Director's Order 18 (1998), and the 2001 Federal Fire Policy. Director's Order 18 guides the development of National Park Service policy relative to fire management, and dictates the program requirements for fire management plans. These requirements are listed in table 1.1. The *Final Yosemite Fire Management Plan/EIS* is in compliance with these policies.

Table I-1
National Park Service Fire Management Program Requirements

National Park Service Policy Directing Development Of Fire Management Plans— Director's Order 18: Wildland Fire Management Section 5: Program Requirements
Every park area with burnable vegetation must have a Fire Management Plan approved by the Superintendent.
All approved fire management plans will: Reinforce the commitment that firefighter and public safety is the first priority. Describe wildland fire management objectives, which are derived from land, natural and cultural resource management plans and address public health issues and values to be protected. Address all potential wildland fire occurrences and consider the full range of wildland fire management actions. Promote an interagency approach to managing fires on an ecosystem basis across agency boundaries and in conformance with the natural ecological processes and conditions characteristic of the ecosystem. Include a description of rehabilitation techniques and standards that comply with resource management plan objectives and mitigate immediate safety threats. Be developed with internal and external interdisciplinary input and reviewed by appropriate subject matter experts and all pertinent interested parties, and approved by the park superintendent. Comply with the National Environmental Policy Act (NEPA) and any other applicable regulatory requirements. Include a wildland fire prevention analysis and plan. Include a fuels management analysis and plan. Include procedures for short and long term monitoring to document that overall programmatic objectives are being met and undesired effects are not occurring.
Until a Fire Management Plan is approved, park areas must take an aggressive suppression action on all wildland fires, taking into account firefighter and public safety and resources to be protected within and outside the park.
Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource benefits cannot be primary consideration unless there is an approved Fire Management Plan.

National Park Service Management Policies

National Park Service Management Policies, Section 4.5 – Fire Management, as revised in 2001, states the following:

> *Naturally ignited fire is a process that is part of many of the natural systems that are being sustained in parks. Human-ignited fires often cause the unnatural destruction of park natural resources. Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised.*
>
> *Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park's natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. An environmental assessment developed in support of the plan will consider the effects on air quality, water quality, health and safety, and natural and cultural resource management objectives. Preparation of the plan and environmental assessment will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments.*
>
> *All fires burning in natural or landscaped vegetation in parks will be classified as either wildland fires or prescribed fires. All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options. These options will be selected after comprehensive consideration of the resource values to be protected, firefighter and public safety, and costs. Prescribed fires are those fires ignited by park managers to achieve resource management and fuel treatment objectives. Prescribed fire activities will include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All parks will use a systematic decision-making process to determine the most appropriate management strategies for all unplanned ignitions, and for any prescribed fires that are no longer meeting resource management objectives.*
>
> *Parks lacking an approved fire management plan may not use resource benefits as a primary consideration influencing the selection of a suppression strategy, but they must consider the resource impacts of suppression alternatives in their decisions. Until a plan is approved, parks must immediately suppress all wildland fires, taking into consideration park resources and values to be protected, firefighter and public safety, and costs. Parks will use methods to suppress wildland fires that minimize impacts of the suppression action and the fire, and are commensurate with effective control, firefighter and public safety, and resource values to be protected.*

In addition, Section 6.3.9 states:

Fire management activities conducted in Wilderness areas will conform to the basic purposes of Wilderness. The park's fire management and Wilderness management plans must identify and reconcile the natural and historic roles of fire in the Wilderness, and will provide a prescription for response, if any, to natural and human-caused wildfires. If a prescribed fire program is implemented, these plans will also include the prescriptions and procedures under which the program will be conducted within Wilderness. Actions taken to suppress wildfires will use the minimum requirement concept, and will be conducted in such a way as to protect natural and cultural resources and to minimize the lasting impacts of the suppression actions.

Federal Wildland Fire Management Policy

The Interagency Federal Wildland Fire Policy Review Working Group revised the Federal Wildland Fire Management Policy in 2001. Main elements of the policy are listed below in table I.2.

Table I-2
2001 Federal Wildland Fire Management Policy

Policy	2001 Federal Wildland Fire Management Policy
Safety	Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
Ecosystem Sustainability	The full range of fire management activities will be used to help achieve ecosystem sustainability including its interrelated ecological, economic, and social components.
Response to Wildland Fire	Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
Use of Wildland Fire	Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions described in operational plans.
Rehabilitation and Restoration	Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
Protection Priorities	The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have committed to an incident, these human resources become the highest value to be protected.
Wildland Urban Interface	The operational roles of federal agencies as partners in the wildland/urban interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer; they may also enter into formal agreements to assist state and local governments with full structural protection.)
Planning	Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and

Policy	2001 Federal Wildland Fire Management Policy
	prescribed fires based on the area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.
Science	Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results mush be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.
Preparedness	Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.
Suppression	Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
Prevention	Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.
Standardization	Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
Interagency Cooperation and Coordination	Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.
Communication and Education	Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.
Agency Administrator and Employee Roles	Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.
Evaluation	Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects begun under the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

Relationship of the Yosemite Fire Management Plan to Other Yosemite National Park Plans

Planning in Yosemite National Park takes two different forms: general management planning and implementation planning. General management plans are required for national parks by the National Park and Recreation Act of 1978. Implementation plans, which tier off of general management plans, focus on "how to implement an activity or project needed to achieve a long-term goal" (DO#2, NPS 1998). Yosemite National Park's *General Management Plan*, completed in

1980, is the foundational document for managing the park. The *Merced Wild and Scenic River Comprehensive Management Plan* derives its authority from the 1968 Wild and Scenic Rivers Act. It amended certain specifics of the *General Management Plan,* but it did not alter its five broad goals.

The *Merced Wild and Scenic River Comprehensive Management Plan* provides the basis for preserving and maintaining the Outstandingly Remarkable Values of the Merced Wild and Scenic River, and for assessing whether the actions in the *Yosemite Fire Management Plan* would contribute to their preservation and maintenance (see Chapter 5, Wild and Scenic Rivers). Changes to the types of fire management practices to be used along the Tuolumne Wild and Scenic River are not being proposed. If changes to the fire treatments along the Tuolumne River corridor are needed in the future, then a Tuolumne Wild and Scenic River Comprehensive Management Plan (not currently prepared) would have the same relationship to the *Yosemite Fire Management Plan* as the *Merced Wild and Scenic River Comprehensive Management Plan*.

General Management Plan

The five goals of Yosemite National Park's *General Management Plan* are to:

- Reclaim priceless natural beauty
- Markedly reduce traffic congestion
- Allow natural processes to prevail
- Reduce crowding
- Promote visitor understanding and enjoyment

With respect to the *General Management Plan's* goal of allowing natural ecosystem processes to prevail, it recognizes that "controlled burns or mechanical removal of vegetation" may be needed to simulate the natural role of fire. The plan also calls for protecting the safety and security of all visitors and employees. The *Final Yosemite Fire Management Plan/EIS* furthers the fire management-related provisions of this *General Management Plan* goal and outlines the programs needed for protecting visitors, employees, and property from risks associated with wildland fire.

Table I-3
Fire Management-Related Objectives from the General Management Plan

OBJECTIVES OF YOSEMITE NATIONAL PARK'S GENERAL MANAGEMENT PLAN THAT INFLUENCE FIRE MANAGEMENT ACTIVIES
Restore and maintain natural terrestrial, aquatic, and atmospheric ecosystems so they may operate essentially unimpaired:
Conduct continuing research to gather and analyze information necessary for managing natural resources.
Restore altered ecosystems as nearly as possible to conditions they would be in today had natural ecological processes not been disturbed.
Protect threatened and endangered plant and animal species.
Identify and perpetuate natural processes in park ecosystems.

Permit only those types and levels of use or development that do not significantly impair park natural resources, and direct development and use to environments less vulnerable to deterioration. Limit unnatural sources of air, noise, visual, and water pollution to the greatest degree possible.
Preserve, protect, and restore scenic resources. Provide for the preservation or protection of existing scenic resources and viewing stations. Provide for historic views through vista clearing.
Preserve, restore, or protect significant cultural resources (historic and prehistoric). Provide for the preservation, restoration, or protection of significant cultural resources.
Assist all people in understanding, enjoying, and contributing to the preservation of the natural, cultural, and scenic resources. Provide interpretive services that relate the natural and cultural significance of Yosemite to visitors with a broad diversity of interests. Provide only for those types and levels of programs and activities that enhance visitor understanding and enjoyment of park resources. Provide the opportunity for a quality Wilderness experience.
Maintain a safe, functional, and orderly environment that provides compatible opportunities for resource preservation and enjoyment by visitors and employees. Classify parklands, specifying their management and use, to insure the achievement of all objectives. Protect the rights, safety, and security of all visitors and employees.
Support an integrated system of compatible regional land uses providing opportunities for recreation, community development, preservation, and economic utilization of resources.

Merced Wild and Scenic River Comprehensive Management Plan

The *Merced Wild and Scenic River Comprehensive Management Plan* works in concert with the goals set forth in the *General Management Plan*; it also outlines a set of goals for management of the Merced Wild and Scenic River. These are: protect and enhance river-related natural resources; protect and restore natural hydrological and geomorphic processes; protect and enhance river-related cultural resources; provide diverse river-related recreational and educational experiences; and provide appropriate land uses. The *Final Yosemite Fire Management Plan/EIS* adheres to these goals, furthering them through fire related ecosystem restoration and maintenance.

Although the *Final Yosemite Fire Management Plan/EIS* is not a development plan or visitor management plan, it is related to the *Merced Wild and Scenic River Comprehensive Management Plan* because fire is a major influence on watershed function and ecosystem health. The Outstandingly Remarkable Values of the Merced River are influenced by the condition of vegetation within the watershed, which in turn is maintained by the presence or absence of wildland fire.

Resources Management Plan

The *Resources Management Plan* for Yosemite National Park was updated in 1993. It describes the natural and cultural resource management programs needed to accomplish the legislated mandates of the National Park Service and Yosemite National Park and apply the policies, program

emphases, and provisions of related planning documents. The *Resources Management Plan* identifies the need for fire management programs and includes project statements specific to fire management, the restoration and maintenance of natural ecosystems and ecosystem processes, and the maintenance and protection of cultural resources. It also recognizes the need for fuels reduction in areas with buildings and other development (wildland/urban interface).

Vegetation Management Plan

The *Vegetation Management Plan* for Yosemite National Park (1997) established broad objectives for the management of vegetation in the park. It describes the dynamic environment of park vegetation, discusses vegetation management issues, and identifies management strategies and techniques for achieving general desired conditions for the various plant communities in the park. One such strategy includes managing fire regimes. In this way, the *Vegetation Management Plan* sets general direction for the *Final Yosemite Fire Management Plan/EIS*. From this general direction are developed a range of fire management activities (see Chapter 2, Alternatives) and more specific target conditions for plant communities (tables 2.3 & 2.4). The goals and management objectives of the *Vegetation Management Plan* are listed in Appendix 10.

Decisions to be Made

The Superintendent of Yosemite National Park will make a recommendation for the final decision to the Regional Director of the National Park Service, Pacific West Region, who is the Deciding Official of the *Final Yosemite Fire Management Plan/EIS*. He will recommend and decide upon:

Whether or not to implement the proposed action, an alternative to the proposed action, or to continue current fire management operations (the No Action Alternative, Alternative A).

What mitigation and monitoring, if any, will be included in the decision.

Scoping and Public Involvement

Issues and Concerns Used to Develop the Alternatives

Preliminary issues were identified using public and agency comments, consultations, and open house records from the public scoping periods in 1999 and 2001. For a complete list of scoping activities during the preparation of the *Draft Yosemite Fire Management Plan/EIS*, see Chapter 6, Consultation and Coordination.

The issues raised and comments made by the public during scoping and through the consultation process were summarized as concern statements. These concern statements were used in developing action alternatives and determining the scope of analysis in the *Draft Yosemite Fire Management Plan/EIS*. These concerns are listed below by subject:

Planning Direction. A number of comments addressed the process or scope of the planning effort, or suggested that certain process-related subjects should be central to the program or plan. Comments received from the public included:

- The National Park Service should consider the effects of future projects (projects in general) on the fire management program.
- The *Yosemite Fire Management Plan* should include detailed maps that show fuel loading and proposed treatments.
- The *Yosemite Fire Management Plan* should primarily address ecosystem restoration and property risk reduction.
- The *Yosemite Fire Management Plan* should adhere to National Park Service and federal fire policies, be coordinated with local fire agencies, and be adequately funded and staffed.
- The current fire management planning effort should not preclude subsequent NEPA review at the project level.
- Prescribed fire policies should be addressed in Yosemite's *General Management Plan*.
- The National Park Service should provide more opportunity for public involvement by having additional public meetings and at times when people can attend without taking time off from their own work.
- The National Park Service should use professional planners and consultants to prepare studies and Environmental Impact Statements.
- The National Park Service should prepare disaster plans specific to communities and developed areas.
- The *Yosemite Fire Management Plan* should clearly specify the National Park Service's priorities for protection of resources, government facilities, and private property.

Fire Management Activities. Many of the comments addressed the actual management of the fire program, or about various strategies, philosophies, or goals for fire management:

- The *Yosemite Fire Management Plan* should address emergency response to wildfires.
- Fire suppression activities should not be overly aggressive.
- The National Park Service should use prescribed fires and wildland fires to reduce fuel accumulations and restore natural fire regimes.
- The National Park Service should conduct large burns to efficiently reduce fuel accumulations.
- The National Park Service should minimize the use of mechanical thinning to reduce fuel accumulations, in order to protect ecosystem health and avoid the appearance of logging in a national park.
- The National Park Service should secure funding to implement wildland fire prevention actions.

- The National Park Service should consider use of multiple techniques to reduce fuel accumulations, including mechanical thinning and prescribed fire.
- The National Park Service should not conduct prescribed burning.
- The National Park Service should suppress most or all naturally ignited fires.
- The National Park Service should cautiously manage prescribed burns on very small scales, at times, to promote mosaics of vegetation and specific resource management goals.
- The National Park Service should utilize mechanical treatments in such a way that they leave the large tree boles to perform the ecological function of coarse woody debris.
- The *Yosemite Fire Management Plan* should address restoration of areas after fire suppression efforts.
- The National Park Service should give preference to mechanical fuel treatment over prescribed burning.
- The National Park Service should mitigate or avoid impacts related to the use of heavy equipment.
- The National Park Service should expand and enforce a fire prevention program.
- The National Park Service personnel should actively manage burn piles and debris piles.
- The National Park Service should consider grazing as a fuel management treatment.
- The National Park Service should consider additional personnel, equipment, and staff housing for the fire program throughout the developed areas of the park.

Community Protection. Protecting communities and developed areas was a major concern to residents, while the affects of developed areas and/or protection activities concerned others:

- The National Park Service should restore a natural fire regime, except in situations, which pose a threat to human life or property.
- The *Yosemite Fire Management Plan* should address liability for damage to structures from wildfires.
- The National Park Service should give first priority to reducing fuel loads on parklands that surround communities.
- The National Park Service should allow non-commercial salvage of firewood and wood chips and thinning by property owner volunteers to create defensible space.
- The National Park Service should implement the National Fire Plan and Wildland Urban Interface Initiative using all treatment methods.

- The National Park Service should consider removing structures in certain areas for forest health.

Ecosystems (general discussions) and Fire Management. Numerous comments addressed restoration of Yosemite's ecosystems and the role of fire as a natural process. Other commentaries emphasized that the National Park Service should conduct studies needed to understand the fire ecology of Yosemite National Park:

- The *Yosemite Fire Management Plan* should focus on restoration of ecosystem health.
- The National Park Service should elevate natural resource protection to the same priority as property protection.
- The National Park Service should not consider resource protection and property protection to be in conflict.
- The *Yosemite Fire Management Plan* should include a fire effects monitoring program.
- The National Park Service should use the best science in management including studies to identify appropriate fire frequency and intensity patterns.
- The *Yosemite Fire Management Plan* should consider the effect of fire on the spread of exotic species, both plant and animal.
- The National Park Service should not consider ecosystem restoration.

Elements of the Natural Environment. The effects of fire on specific natural resources (wildlife, water, soil stability, vegetation, and others) were described as concerns:

- The *Yosemite Fire Management Plan* should consider the effect of fire on vegetation communities, wildlife species, special-status species, and seasonal habitat.
- The *Yosemite Fire Management Plan* should consider the effects of fire on soil nutrient levels, erosion, and water quality.
- The National Park Service should consider use of multiple techniques, such as prescribed fire and mechanical thinning, to restore meadow communities including hydrological processes and features.

Air Quality. Numerous comments were received about compliance with air quality regulations, reduced air quality from smoke, and the differing effects on air quality from various fire management techniques:

- The *Yosemite Fire Management Plan* should comply with federal, state, and local air quality regulations.
- The *Yosemite Fire Management Plan* should consider the effects of fire on regional air quality.
- The National Park Service should consider smoke impacts on health, visual resources, and events.

- The National Park Service should consider fuel reduction and ecosystem restoration techniques that minimize adverse effects on air quality.

- The National Park Service should consider limiting campfires for air quality.

- The National Park Service can manage the effects of smoke from planned prescribed burning but not from large, unwanted, wildland fire events.

Wilderness. Comments were received on the role of fire in Wilderness, as well as the appropriateness of various fire management activities:

- The National Park Service should allow natural fire processes to prevail in Wilderness.

- The National Park Service should consider potential Wilderness suitability and the wildland/urban interface in *Yosemite Fire Management Plan* planning for McCauley Ranch.

- The National Park Service should consider using fuel reduction measures in Wilderness.

Access. Numerous comments spoke to the appropriateness, inappropriateness, or need for roads, bridges, and trails providing access and firebreaks:

- The *Yosemite Fire Management Plan* should address accessibility of park roads to fire suppression equipment.

- The National Park Service should not consider building new roads to allow machinery into parts of the park.

- The National Park Service should maintain existing roads, trails, and bridges and consider constructing additional roads to provide access and create firebreaks.

Social Environment.

- The National Park Service should use cost recovery and other economic considerations and local labor in fuel reduction treatments.

- The National Park Service should not let economic considerations direct management strategy.

- The National Park Service should use mechanical thinning in maintaining scenic vistas.

- The National Park Service should consider the effects of fire management activities on natural quiet.

Communication, Coordination, and Consultation. Many comments addressed the need for and role of consultation, communication, and coordination activities between the fire management program and communities, other agencies, organizations, and other groups:

- The National Park Service should give neighboring communities advance notice about scheduled burns.

- The National Park Service should consult, coordinate, and collaborate with neighboring communities, businesses, non-governmental organizations, governmental entities, and the scientific community to resolve fire management concerns and to assure that fire management is carried out safely, efficiently, and effectively.

- The National Park Service should educate the public on the value and necessity of fuel reduction treatments and wildland fire as an ecosystem process.

- The *Yosemite Fire Management Plan* should address federal, state, and local emergency communications.

Public Comments on the Draft Environmental Impact Statement

Public comments on the *Draft Fire Management Plan/EIS* and the responses to these comments are shown in Appendix 12. Principal areas of public concern included:

- The removal of trees up to 31.5" to meet target conditions is too large; in response, the maximum diameter was reduced to 20."

- Mechanical work should not be done in Wilderness; in response, no mechanical thinning with tracked or wheeled vehicles to achieve hazard reduction or forest restoration targets will be done in Wilderness. Hand thinning may be done to prepare an area for a prescribed fire, or to protect an area from wildland fire, such as in the inner WUI. Hand thinning may also be done in support of wildland fire management operations.

- No new roads should be constructed for thinning operations; in response, it is affirmed that no new roads would be built or improved for mechanical thinning projects.

- No commercial logging should occur in Yosemite National Park to fund either park operations or the park's fuels management program. In response, it is affirmed that no funds from thinning activities can be retained for use within the park.

- No specific year should be selected for the forest restoration target. In response, it is clarified that no specific year forms the basis for target conditions. Target conditions are a general range of vegetation characteristics that existed 90-130 years ago, prior to the onset of wildland fire suppression.

- Mechanical thinning would be too widespread around the park; in response, under this EIS, mechanical thinning for forest restoration is limited to ¼ mile around six wildland/urban interface communities (i.e., the inner WUI). Mechanical thinning for forest restoration goals beyond the inner WUI would require a separate environmental compliance document subject to public review and comment. Mechanical thinning in support of wildland fire and prescribed fire operations would be limited to hand thinning methods, unless other methods are approved by the Superintendent because of risk to human life, property, and significant natural and cultural resources.

Issues Beyond the Scope of the Yosemite Fire Management Plan

Non-native Plant Management

Although various methods of burning or thinning may be used to treat non-native plant invasions, restore natural conditions, or introduce a change in vegetation, the *Yosemite Fire Management Plan* does not specifically address non-native species management. The *Vegetation Management Plan* (1997) for the park identifies the general goals, objectives, and strategies for non-native plant management and directs the preparation of a non-native plant species management plan. When plans for non-native plant control identify the need to use fire as a tool, prescribed fire plans will be prepared consistent with the *Yosemite Fire Management Plan* and this EIS. The prevention or eradication of non-native plant species introduced during fire suppression operations will be addressed in individual Burned Area Rehabilitation plans.

Project-Specific Planning

Reference Manual 18 (USDI NPS, 2002), which describes the procedures to be followed in the development of a fire management plan, states:

The FMP will incorporate a programmatic approach to the National Environmental Policy Act of 1969 (NEPA) that covers all activities described in the fire management plan. This will reduce the need for NEPA documents for individual projects addressed in the FMP. Additional NEPA (Environmental Assessments (EAs) or Categorical Exclusions (CEs) for specific burns would need to be done only if external controversial issues arise.

The *Final Yosemite Fire Management Plan/EIS* is an implementation document that would allow the use of prescribed and wildland fire, as well as mechanical fuels reduction techniques, in defined areas of the park without additional NEPA compliance. The effects of using prescribed fire, wildland fire, and mechanical techniques to meet management objectives in specific areas of the park are described in the EIS. The *Final Yosemite Fire Management Plan/EIS* establishes prescribed fire and mechanical treatment units (locations) and identifies the range of treatments available to use within them and the potential effects. With regard to prescribed fire, fire will be applied within a specific range of conditions (the prescription), which in turn is expected to produce a consistent range of effects.

Site specific prescribed fire plans are directed by National Park Service policy (Director's Order 18 and Reference Manual 18) and will be prepared by fuels management specialists for each prescribed fire. These plans will be reviewed by park biologists, botanists, and archaeologists to ensure protection of sensitive resources. Consultation under Section 106 of the National Historic Preservation Act or Section 7 of the Endangered Species Act would be completed if needed. Projects with activities and effects not described in this EIS require additional NEPA documentation. Additional NEPA documents may also be prepared for mechanical treatment projects in wildland/urban interface areas if potential environmental effects of the mechanical methods are not well understood or in need of further analysis.

Special Resource Management Projects

Special projects may include vista clearing, cultural landscape maintenance, and endangered species habitat management. The *Final Yosemite Fire Management Plan EIS* does not develop specific objectives for restoring and maintaining vistas and cultural landscapes, or for managing special-status species and restoring habitat, but considers them as issues. When other plans

indicate the need to employ fire as a tool, then a prescribed fire plan will be prepared consistent with the *Yosemite Fire Management Plan*. If the scope of the effects are already considered in this *Environmental Impact Statement*, then it will apply. If the scope of the effects have not been considered, additional NEPA documentation may be needed.

Emergency Fire Suppression Activities

Emergency fire suppression activities are urgent responses to natural- or human-caused wildland fires, taken to protect health, safety and property, including historic property, as guided by National Park Service, Department of Interior, and Federal Wildland Fire Management policies. As such, emergency fire suppression actions and their immediate effects are beyond the scope of this document and will not be evaluated.

The range of emergency fires suppression actions, as taken under the guidance of the above mentioned policies, would be too broad, speculative, or conjectural to lend themselves to meaningful analysis, because of the great range of variability with respect to prevailing conditions (e.g., weather, fuels, and site topography), suppression resources available, and strategy and tactics needed to deal with actual fire behavior and spread on the site of the unplanned ignition (i.e., they do not occur within a well-evaluated and scheduled window of opportunity; decisions must be made on a case by case basis).

All unplanned ignitions in the Suppression Unit in the Project Area will be suppressed using an emergency suppression response that is appropriate for the circumstances. The response procedures applied are listed in Appendix 3, Wildland Fire Response, Planning, and Implementation Procedures. The development of the response should include representatives from not only the Branch of Fire Management, but also from other disciplines in the park as well.

Although suppression actions are beyond the scope of this document, for the above reasons, the following topics are within the scope, and are evaluated in this document:

- ***Units and their boundaries.*** Units are based on the values at risk and the potential for managing those risks through fire management activity (e.g., prescribed fire, wildland fire, and fuel treatment and thinning). Where the risks associated with wildland fire cannot be adequately managed or are unacceptable because of the risk/threat to life, health, property, and/or natural and cultural resource values, the areas are zoned as the Suppression Unit (17% of the park would be in this zone under the action alternatives). Where the risks associated with wildland fire can be managed, such that it can be utilized to accomplish resource management objectives, the park is zoned as the Fire Use Unit (83% of the park would be within this zone under the action alternatives). Even in the Fire Use Unit, under some conditions and because of risks, the appropriate management response might be to suppress a fire or to take control actions along edges; this is within scope and is assessed.

- ***Long-term effects of emergency fire suppression activity.*** These effects are considered in the analysis as part of "Potential for Catastrophic Fire," for each alternative. The long-term effects of fire suppression (such as changes in forest structure and fuel loading), are considered in combination with the actions taken to reverse those trends, restore ecosystems, and reduce risks.

- ***The effects of fire management treatments used to reduce risks and/or restore ecosystems.*** Prescribed fire, managed wildland fires (i.e., natural fires allowed to burn for resource

benefits), and fuel reduction treatments are applied according to a previously evaluated and pre-determined window of opportunity, which allows these treatments to be utilized to accomplish resource management objectives (there is no suitable window for managed wildland fires in the Suppression Unit because of the risks).

- ***Standard mitigation.*** Mitigation identified in this document for use when applying fire management treatments to species of concern (prescribed fire, managed wildland fire, and mechanical fuel reduction) would also be used, as appropriate, to mitigate effects and help in decision making during emergency fire suppression actions.